

LUC-306 / Bright 4-1

2

Claim Amendments

1. (currently amended) A multiple-protocol home location register comprising:

a receiver for receiving, from a standard HLR of a requesting network of at least two networks and without a requirement for any modification to the standard HLR, a network request according to one of at least two network protocols;

a processor, within the multiple-protocol home location register, wherein the processor is arranged and constructed to generate network messages according to the at least two network protocols and to process the network request to obtain information requested by the network request;

a transmitter, operably coupled to the processor, for relaying the requested information to at least one of the requesting network and a destination network.

2. (original) The multiple-protocol home location register of claim 1, wherein the processor is further arranged and constructed to translate messages according to the at least two network protocols.

3. (currently amended) The multiple-protocol home location register of claim 1, wherein the ~~at least one query~~ requested information is generated in response to a communication device request to communicate with a serving network.

LUC-306 / Bright 4-1

3

4. (original) The multiple-protocol home location register of claim 1, wherein the processor is further arranged and constructed to send a profile for a communication device to a serving network and to format the profile according to the serving network's protocol.

5. (currently amended) A method comprising the steps of:

receiving, by a multiple-protocol home location register, a network request from a standard HLR of a requesting network of at least two requesting networks and without a requirement for any modification to the standard HLR, wherein the network request is composed according to one of at least two network protocols;

processing the network request to obtain information requested by the network request;

generating at least one network message according to at least one of the at least two network protocols and sending the at least one network message to at least one network supporting the at least one of the at least two network protocols;

relaying the requested information to a destination network.

6. (original) The method of claim 5, wherein the step of processing comprises the step of translating the network request.

7. (original) The method of claim 5, wherein the step of processing comprises the step of converting a Location Request message to a Provide Roaming Number message.

8. (original) The method of claim 5, wherein the step of processing comprises the step of converting a Send Routing Information message to a Routing Request message.

LUC-306 / Bright 4-1

4

9. (original) The method of claim 5, wherein the step of processing comprises the step of distributing, throughout the multiple-protocol home location register, subscriber information for a plurality of communication devices.

10. (original) The method of claim 5, wherein the step of processing comprises the step of determining and storing a protocol type and an address for an infrastructure device.

11. (currently amended)_____The method of claim 10, wherein the infrastructure device is a gateway mobile switching center.

12. (original) The method of claim 5, wherein the step of processing comprises the step of determining and storing a protocol type and an address for a communication device.

13. (original) The method of claim 12, wherein the step of processing comprises the step of determining and storing a protocol type and an address for a serving network for the communication device.

14. (original) The method of claim 5, wherein the multiple-protocol home location register receives a network request, regarding a communication device, from an infrastructure device, regardless of the communication device's native mode protocol.

15. (original) The method of claim 5, further comprising the step of detecting a protocol type for an infrastructure device, and when the protocol type for the infrastructure device is not a first network protocol, communicating through a mediation device to a home location register of the protocol type for the infrastructure device.

LUC-306 / Bright 4-1

5

16. (currently amended) The method of claim 5, wherein ~~any infrastructure device is~~ the at least two networks comprise at least one of a terminating mobile switching center, a visited mobile switching center, a gateway mobile switching center, a packet gateway, and an internet protocol gateway.

17. (original) The method of claim 5, further comprising the step of storing call forwarding information such that processing for call forwarded communications takes place between a mediation device in the multiple-protocol home location register and a terminating mobile switching center.

18. (original) The method of claim 5, further comprising the step of issuing an instruction to a previous mobile switching center to delete a visited location register for a communication device.

19. (original) The method of claim 5, wherein the step of processing comprises the step of storing an identification of an infrastructure device that terminates a call.

20. (original) The method of claim 5, wherein the step of processing comprises the step of determining whether a communication device supports multiple-mode operation.

21. (original) The method of claim 5, wherein the step of processing comprises the step of converting a short messaging service message from a first network protocol to a second network protocol.

LUC-306 / Bright 4-1

6

22. (original) The method of claim 5, wherein the step of processing comprises the steps of routing a pre-paid call, originating according to a first protocol of the at least two network protocols, to an infrastructure device operating according to a second protocol of the at least two network protocols and handling the pre-paid call according to normal call processing procedures for the second protocol.

23. (currently amended) The method of claim 5, wherein ~~any infrastructure device is~~ the at least two networks comprise at least one of a terminating mobile switching center, a visited mobile switching center, a gateway mobile switching center, a packet gateway, and an internet protocol gateway.

24. (original) The method of claim 5, wherein the destination network is determined by a location for a communication device associated with the network request.

25. (currently amended) A multiple-protocol home location register (HLR) comprising:

- a first standard HLR arranged and constructed to provide a first network protocol;
- a second standard HLR arranged and constructed to provide a second network protocol;
- a mediation device, operably coupled to the first standard HLR and the second standard HLR without a requirement for any modification to the first standard HLR and/or the second standard HLR, wherein the mediation device is arranged and constructed to generate network messages according to the first network protocol and the second network protocol, such that the multiple-protocol HLR provides HLR capability for a plurality of communication devices utilizing any of the first network protocol and the second network protocol.

LUC-306 / Bright 4-1

7

26. (original) The multiple-protocol HLR of claim 25, wherein the mediation device is further arranged and constructed to translate messages between the first network protocol and the second network protocol.

27. (original) The multiple-protocol HLR of claim 25, wherein the mediation device is arranged and constructed to convert a Provide Roaming Number message to a Location Request message.

28. (original) The multiple-protocol HLR of claim 25, wherein the mediation device is arranged and constructed to convert a Routing Request message to a Send Routing Information message.

29. (currently amended) The multiple-protocol HLR of claim 25, further comprising a provisioning gateway, operably coupled to the first standard HLR and the second standard HLR, wherein the provisioning gateway is arranged and constructed to distribute, among the first standard HLR and the second standard HLR, subscriber information for the plurality of communication devices.

30. (original) The multiple-protocol HLR of claim 25, wherein the first and second network protocols comprise at least one of ANSI-41, GSM MAP, SIP, H.323, AAA, and M-IP.

31. (original) The multiple-protocol HLR of claim 25, wherein the mediation device is further arranged and constructed to determine and store a protocol type and an address for an infrastructure device.

LUC-306 / Bright 4-1

8

32. (original) The multiple-protocol HLR of claim 31, wherein the infrastructure device is a gateway mobile switching center.

33. (original) The multiple-protocol HLR of claim 31, wherein the mediation device is further arranged and constructed to determine and store a protocol type and an address for a communication device.

34. (original) The multiple-protocol HLR of claim 33, wherein the mediation device is further arranged and constructed to determine and store a protocol type and an address for a serving network for the communication device.

35. (currently amended) The multiple-protocol HLR of claim 25, wherein the first standard HLR is further arranged and constructed to receive a query, regarding a communication device, from an infrastructure device supporting the first network protocol, regardless of whether the communication device's native mode is of the first network protocol.

36. (currently amended) The multiple-protocol HLR of claim 25, wherein the first standard HLR is further arranged and constructed to detect ~~whether a~~ protocol type for an infrastructure device, and when the protocol type for the infrastructure device is not the first network protocol, to communicate through the mediation device to ~~an~~ the second standard HLR or a standard HLR of the protocol type for the infrastructure device.

LUC-306 / Bright 4-1

9

37. (original) The multiple-protocol HLR of claim 25, wherein the mediation device is further arranged and constructed to store call forwarding information such that processing for call forwarded communications takes place between the mediation device and a terminating mobile switching center.

38. (currently amended) The multiple-protocol HLR of claim 25, wherein ~~any infrastructure device is~~ the plurality of communication devices comprise at least one of a terminating mobile switching center, a visited mobile switching center, a gateway mobile switching center, a packet gateway, and an internet protocol gateway.

39. (currently amended) A system comprising:

a first standard HLR ~~infrastructure device~~ arranged and constructed to generate at least one query according to a first network protocol without a requirement for any modification to the first standard HLR;

a second standard HLR ~~infrastructure device~~ arranged and constructed to function according to a second network protocol without a requirement for any modification to the second standard HLR; and

a multiple-protocol home location register, operably coupled to the first ~~infrastructure device~~ standard HLR and the second ~~infrastructure device~~ standard HLR, wherein the multiple-protocol home location register is arranged and constructed to function according to the first network protocol and the second protocol, such that a call request according to the first network protocol and related to the at least one query is completed according to the second network protocol.

LUC-306 / Bright 4-1

10

40. (original) The system of claim 39, wherein the at least one query is generated in response to a communication device request to communicate with a serving network.

41. (original) The system of claim 40, wherein a profile for the communication device is sent to the serving network and the profile is formatted according to the serving network's protocol.

42. (original) The system of claim 40, wherein the serving network utilizes the first network protocol.

43. (original) The system of claim 39, wherein the multiple-protocol home location register is further arranged and constructed to provide call forwarding functionality.

44. (original) The system of claim 39, wherein the call request is a call termination request.

45. (original) The system of claim 39, further comprising a provisioning gateway, operably coupled to the multiple-protocol home location register, wherein the provisioning gateway is arranged and constructed to provide subscriber information for the plurality of communication devices.

46. (original) The system of claim 39, wherein the first and second network protocols comprise at least one of ANSI-41, GSM MAP, SIP, H.323, AAA, and M-IP.

LUC-306 / Bright 4-1

11

47. (currently amended) The system of claim 39, wherein the multiple-protocol home location register is further arranged and constructed to determine and store a protocol type and an address for the first ~~infrastructure device~~ standard HLR.

48. (currently amended) The system of claim 39, wherein the first ~~infrastructure device~~ standard HLR is further arranged and constructed to receive a request from a communication device regardless of whether the communication device's native mode is of the first network protocol.

49. (currently amended) The system of claim 39, wherein the multiple-protocol home location register is further arranged and constructed to store call forwarding information such that processing for call forwarded communications takes place between the multiple-protocol home location register and the second ~~infrastructure device~~ standard HLR.

50. (original) The system of claim 39, wherein any infrastructure device is one of a terminating mobile switching center, a visited mobile switching center, a gateway mobile switching center, a packet gateway, and an internet protocol gateway.

51. (currently amended) The system of claim 39, wherein the first ~~infrastructure device~~ is first standard HLR generates the at least one query for a gateway mobile switching center.

52. (currently amended) The system of claim 39, wherein the second ~~infrastructure device~~ is second standard HLR handles the at least one query for a terminating mobile switching center.

LUC-306 / Bright 4-1

12

53. (currently amended) A method comprising the steps of:

generating, by a first standard HLR of a requesting network for a first infrastructure device and without a requirement for any modification to the first standard HLR, a query according to a first network protocol;

sending the first network protocol query to a multiple-protocol home location register functioning according to the first network protocol and a second network protocol;

processing, by the multiple-protocol home location register, the first network protocol query, thereby generating a second network protocol message;

sending the second network protocol message to a second standard HLR of a destination network for a second infrastructure device functioning according to the second network protocol and without a requirement for any modification to the second standard HLR.

54. (original) The method of claim 53, wherein the step of processing comprises the step of translating the network request.

55. (original) The method of claim 53, wherein the step of processing comprises the step of converting a Location Request message to a Provide Roaming Number message.

56. (original) The method of claim 53, wherein the step of processing comprises the step of converting a Routing Request message to a Send Routing Information message.

57. (original) The method of claim 53, wherein the step of processing comprises the step of distributing, throughout the multiple-protocol home location register, subscriber information for a plurality of communication devices.

LUC-306 / Bright 4-1

13

58. (original) The method of claim 53, wherein the step of processing comprises the step of determining and storing a protocol type and an address for the first infrastructure device.

59. (currently amended) The method of claim 53, wherein the multiple-protocol home location register receives a network request, regarding a communication device, from the first infrastructure device standard HLR, regardless of the communication device's native mode protocol.

60. (original) The method of claim 53, further comprising the step of detecting a protocol type for the second infrastructure device, and when the protocol type for the second infrastructure device is not the first network protocol, processing the first network protocol query according to the protocol type for the second infrastructure device.

61. (currently amended) The method of claim 53, further comprising the step of storing call forwarding information such that processing for call forwarded communications takes place between the multiple-protocol home location register, the second standard HLR, and the second infrastructure device.

62. (original) The method of claim 53, further comprising the step of issuing an instruction to a previous mobile switching center to delete a visited location register for a communication device.

63. (original) The method of claim 53, wherein the step of processing comprises the step of storing an identification of the second infrastructure device for a call.

LUC-306 / Bright 4-1

14

64. (original) The method of claim 53, wherein the step of processing comprises the step of determining whether a communication device supports multiple-mode operation.

65. (original) The method of claim 53, wherein the step of processing comprises the step of converting a short messaging service message from a first network protocol to a second network protocol.

66. (original) The method of claim 53, wherein the step of processing comprises the steps of routing a pre-paid call, originating according to the first protocol, to a third infrastructure device and handling the pre-paid call according to normal call processing procedures for the second protocol.

67. (original) The method of claim 66, wherein the step of routing is based on at least one of a prefix plus a called party number and a different number.

68. (currently amended) The method of claim 53, wherein any of the first and/or second infrastructure devices is one of a terminating mobile switching center, a visited mobile switching center, a gateway mobile switching center, a packet gateway, and an internet protocol gateway.

69. (original) The method of claim 53, wherein the first infrastructure device is a gateway mobile switching center.

70. (original) The method of claim 53, wherein the second infrastructure device is a terminating mobile switching center.

LUC-306 / Bright 4-1

15

71. (original) The method of claim 53, wherein the step of processing comprises the steps of routing a call, originating according to the first protocol, to a third infrastructure device of the second protocol and handling the call according to normal call processing procedures for the second protocol.

72. (new) The multiple-protocol home location register of claim 1, wherein the standard HLR comprises a standalone HLR.

LUC-306 / Bright 4-1

16

73. (new) The multiple-protocol home location register of claim 1, wherein the standard HLR comprises a first standard HLR, the multiple-protocol home location register further comprising:

a mediation device;

wherein the requesting network comprises the first standard HLR and a first mobile switching center that communicate through employment of a first network protocol of the at least two network protocols;

wherein the destination network comprises a second standard HLR and a second mobile switching center that communicate through employment of a second network protocol of the at least two network protocols;

wherein the multiple-protocol home location register performs a call delivery of a call that originates at a communication device in the requesting network and terminates in the destination network;

wherein the first mobile switching center receives an initial address message from the communication device through employment of the first network protocol, wherein the initial address message comprises a called party number;

wherein the first mobile switching center sends routing information to the first standard HLR in response to the initial address message through employment of the first network protocol;

wherein the first standard HLR determines that the destination network employs the second network protocol;

wherein the first standard HLR sends a provide roaming number message with a first mobile switching center address and first network protocol type to the mediation device;

LUC-306 / Bright 4-1

17

wherein the mediation device stores the first mobile switching center address and the first network protocol type;

wherein the mediation device converts the provide roaming number message to a location request message in the second network protocol, wherein the location request message comprises a mobile switching center identification that identifies the mediation device;

wherein the mediation devices sends the location request message to the second standard HLR;

wherein the second standard HLR sends a route request message to the second mobile switching center through employment of the second network protocol, wherein the route request message comprises the mobile switching center identification that identifies the mediation device;

wherein the second mobile switching center sends an acknowledgement message to the second standard HLR in response to the route request message through employment of the second network protocol, wherein the acknowledgement message comprises a temporary location directory number;

wherein the second standard HLR relays the acknowledgement message to the mediation device through employment of the second network protocol;

wherein the mediation device sends a provide roaming number acknowledgement with a mobile subscribing roaming number to the first standard HLR through employment of the first network protocol;

wherein the first standard HLR sends a send routing information acknowledgement to the first mobile switching center through employment of the first network protocol, wherein the send routing information acknowledgement comprises the mobile subscribing roaming number;

LUC-306 / Bright 4-1

18

wherein the first mobile switching center sends the initial address message with the mobile subscribing roaming number to the second mobile switching center;

wherein the second mobile switching center completes the call to the destination network.

74. (new) The method of claim 5, wherein the standard HLR comprises a standalone HLR.

LUC-306 / Bright 4-1

19

75. (new) The method of claim 5, wherein the standard HLR comprises a first standard HLR, the method further comprising the steps of:

receiving, at a first mobile switching center of the requesting network, an initial address message from a communication device through employment of a first network protocol of the at least two network protocols, wherein the initial address message comprises a called party number;

sending routing information from the first mobile switching center to the first standard HLR in response to the initial address message through employment of the first network protocol;

determining, by the first standard HLR, that the destination network employs a second network protocol of the at least two network protocols;

sending, by the first standard HLR, a provide roaming number message with a first mobile switching center address and first network protocol type to a mediation device;

storing, by the mediation device, the first mobile switching center address and the first network protocol type;

converting, by the mediation device, the provide roaming number message to a location request message in the second network protocol, wherein the location request message comprises a mobile switching center identification that identifies the mediation device;

sending, by the mediation device, the location request message to a second standard HLR of the destination network;

LUC-306 / Bright 4-1

20

sending, by the second standard HLR, a route request message to the second mobile switching center through employment of the second network protocol, wherein the route request message comprises the mobile switching center identification that identifies the mediation device;

sending, by the second mobile switching center, an acknowledgement message to the second standard HLR in response to the route request message through employment of the second network protocol, wherein the acknowledgement message comprises a temporary location directory number;

relaying, by the second standard HLR, the acknowledgement message to the mediation device through employment of the second network protocol;

sending, by the mediation device, a provide roaming number acknowledgement with a mobile subscribing roaming number to the first standard HLR through employment of the first network protocol;

sending, by the first standard HLR, a send routing information acknowledgement to the first mobile switching center through employment of the first network protocol, wherein the send routing information acknowledgement comprises the mobile subscribing roaming number;

sending, by the first mobile switching center, the initial address message with the mobile subscribing roaming number to the second mobile switching center;

completing, by the second mobile switching center, the call to the destination network.

76. (new) The multiple-protocol home location register of claim 25, wherein the standard HLR comprises a standalone HLR.

LUC-306 / Bright 4-1

21

77. (new) The multiple-protocol home location register of claim 25, further comprising:

a requesting network and a destination network;

wherein the requesting network comprises the first standard HLR and a first mobile switching center that communicate through employment of a first network protocol of the at least two network protocols;

wherein the destination network comprises the second standard HLR and a second mobile switching center that communicate through employment of a second network protocol of the at least two network protocols;

wherein the multiple-protocol home location register performs a call delivery of a call that originates at a communication device in the requesting network and terminates in the destination network;

wherein the first mobile switching center receives an initial address message from the communication device through employment of the first network protocol, wherein the initial address message comprises a called party number;

wherein the first mobile switching center sends routing information to the first standard HLR in response to the initial address message through employment of the first network protocol;

wherein the first standard HLR determines that the destination network employs the second network protocol;

wherein the first standard HLR sends a provide roaming number message with a first mobile switching center address and first network protocol type to the mediation device;

LUC-306 / Bright 4-1

22

wherein the mediation device stores the first mobile switching center address and the first network protocol type;

wherein the mediation device converts the provide roaming number message to a location request message in the second network protocol, wherein the location request message comprises a mobile switching center identification that identifies the mediation device;

wherein the mediation devices sends the location request message to the second standard HLR;

wherein the second standard HLR sends a route request message to the second mobile switching center through employment of the second network protocol, wherein the route request message comprises the mobile switching center identification that identifies the mediation device;

wherein the second mobile switching center sends an acknowledgement message to the second standard HLR in response to the route request message through employment of the second network protocol, wherein the acknowledgement message comprises a temporary location directory number;

wherein the second standard HLR relays the acknowledgement message to the mediation device through employment of the second network protocol;

wherein the mediation device sends a provide roaming number acknowledgement with a mobile subscribing roaming number to the first standard HLR through employment of the first network protocol;

wherein the first standard HLR sends a send routing information acknowledgement to the first mobile switching center through employment of the first network protocol, wherein the send routing information acknowledgement comprises the mobile subscribing roaming number;

LUC-306 / Bright 4-1

23

wherein the first mobile switching center sends the initial address message with the mobile subscribing roaming number to the second mobile switching center;

wherein the second mobile switching center completes the call to the destination network.

78. (new) The system of claim 39, wherein the standard HLR comprises a standalone HLR.

LUC-306 / Bright 4-1

24

79. (new) The system of claim 39, further comprising:

a requesting network and a destination network;

wherein the requesting network comprises the first standard HLR and a first mobile switching center that communicate through employment of a first network protocol of the at least two network protocols;

wherein the destination network comprises the second standard HLR and a second mobile switching center that communicate through employment of a second network protocol of the at least two network protocols;

wherein the multiple-protocol home location register performs a call delivery of a call that originates at a communication device in the requesting network and terminates in the destination network;

wherein the first mobile switching center receives an initial address message from the communication device through employment of the first network protocol, wherein the initial address message comprises a called party number;

wherein the first mobile switching center sends routing information to the first standard HLR in response to the initial address message through employment of the first network protocol;

wherein the first standard HLR determines that the destination network employs the second network protocol;

wherein the first standard HLR sends a provide roaming number message with a first mobile switching center address and first network protocol type to the multiple-protocol home location register;

LUC-306 / Bright 4-1

25

wherein the multiple-protocol home location register stores the first mobile switching center address and the first network protocol type;

wherein the multiple-protocol home location register converts the provide roaming number message to a location request message in the second network protocol, wherein the location request message comprises a mobile switching center identification that identifies the multiple-protocol home location register;

wherein the multiple-protocol home location register sends the location request message to the second standard HLR;

wherein the second standard HLR sends a route request message to the second mobile switching center through employment of the second network protocol, wherein the route request message comprises the mobile switching center identification that identifies the multiple-protocol home location register;

wherein the second mobile switching center sends an acknowledgement message to the second standard HLR in response to the route request message through employment of the second network protocol, wherein the acknowledgement message comprises a temporary location directory number;

wherein the second standard HLR relays the acknowledgement message to the multiple-protocol home location register through employment of the second network protocol;

wherein the multiple-protocol home location register sends a provide roaming number acknowledgement with a mobile subscribing roaming number to the first standard HLR through employment of the first network protocol;

LUC-306 / Bright 4-1

26

wherein the first standard HLR sends a send routing information acknowledgement to the first mobile switching center through employment of the first network protocol, wherein the send routing information acknowledgement comprises the mobile subscribing roaming number;

wherein the first mobile switching center sends the initial address message with the mobile subscribing roaming number to the second mobile switching center;

wherein the second mobile switching center completes the call to the destination network.

80. (new) The method of claim 53, wherein the standard HLR comprises a standalone HLR.

LUC-306 / Bright 4-1

27

81. (new) The method of claim 53, further comprising the steps of:

receiving, at a first mobile switching center of the requesting network, an initial address message from a communication device through employment of a first network protocol of the at least two network protocols, wherein the initial address message comprises a called party number;

sending routing information from the first mobile switching center to the first standard HLR in response to the initial address message through employment of the first network protocol;

determining, by the first standard HLR, that the destination network employs a second network protocol of the at least two network protocols;

sending, by the first standard HLR, a provide roaming number message with a first mobile switching center address and first network protocol type to a mediation device;

storing, by the mediation device, the first mobile switching center address and the first network protocol type;

converting, by the mediation device, the provide roaming number message to a location request message in the second network protocol, wherein the location request message comprises a mobile switching center identification that identifies the mediation device;

sending, by the mediation device, the location request message to a second standard HLR of the destination network;

sending, by the second standard HLR, a route request message to the second mobile switching center through employment of the second network protocol, wherein the route request message comprises the mobile switching center identification that identifies the mediation device;

LUC-306 / Bright 4-1

28

sending, by the second mobile switching center, an acknowledgement message to the second standard HLR in response to the route request message through employment of the second network protocol, wherein the acknowledgement message comprises a temporary location directory number;

relaying, by the second standard HLR, the acknowledgement message to the mediation device through employment of the second network protocol;

sending, by the mediation device, a provide roaming number acknowledgement with a mobile subscribing roaming number to the first standard HLR through employment of the first network protocol;

sending, by the first standard HLR, a send routing information acknowledgement to the first mobile switching center through employment of the first network protocol, wherein the send routing information acknowledgement comprises the mobile subscribing roaming number;

sending, by the first mobile switching center, the initial address message with the mobile subscribing roaming number to the second mobile switching center;

completing, by the second mobile switching center, the call to the destination network.